

DEVELOPING AN EFFECTIVE FIRE INSPECTION PROGRAM

EXECUTIVE LEADERSHIP

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An applied research project submitted to the National Fire Academy
as part of the Executive Fire Officer Program

January 2006

CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

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ABSTRACT

The Chambersburg Fire Department performs fire inspections and code enforcement with the career firefighters. The problem was the program was not effective. The purpose of this applied research project was to develop an effective fire inspection and code enforcement program that would systematically inspect all business and commercial occupancies within the Borough. The action research method was used for this project to answer the questions:

1. What is a fire inspection program?
2. What are the advantages to having a fire inspection program?
3. What has to be implemented to increase the effectiveness of a fire inspection program?

The procedures included a literature review, fire inspection data analysis, an interview, correspondence and communication and an action plan was developed to identify the goal, strategies and objectives to develop an effective fire inspection program.

The results indicated the need to (a) prioritize and divide the inspection workload evenly, (b) establish firefighter duties and responsibilities, (c) evaluate each firefighter's progress, (d) certify all firefighters to the NFPA 1031 standard for fire inspectors, (e) perform direct oversight for the inspection process and (f) provide continuing education in the future.

The recommendations for the project include (a) maintaining the fire codes within the Borough, (b) continued management of the fire inspection program, (c) achieving the training goals to ensure quality fire inspections and (d) to evaluate the true effectiveness of the program in the future by measuring the reduction in fire deaths and injuries and fire losses.

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INTRODUCTION

The Chambersburg Fire Department relies on the career firefighters to perform the majority of the fire inspections and code enforcement in the Borough of Chambersburg. The problem is that the current fire inspection program is not effective. In 2004, only 79 inspections were completed out of approximately 1000 business and commercial structures (Chambersburg Fire Department (CFD)).

The purpose of this applied research project is to develop an effective fire inspection and code enforcement program that will systematically inspect all business and commercial occupancies within the Borough. The action research method was used for this project to answer the questions:

1. What is a fire inspection program?
2. What are the advantages to having a fire inspection program?
3. What has to be implemented to increase the effectiveness of a fire inspection program?

BACKGROUND AND SIGNIFICANCE

The Borough of Chambersburg, Pennsylvania was founded in 1764. It is geographically located in south-central Pennsylvania on Interstate 81, fourteen miles north of the Maryland state line. The population was 17,862 in 2000 in a 6.5 square mile area. The Borough has a mix of historical, residential, commercial and industrial areas. The community is under the Pennsylvania Borough form of government that includes an elected town council from five wards, an elected Mayor and an appointed Borough Manager. All legislative and executive authority resides with Borough Council (Borough of Chambersburg, 2005).

According to Assistant Chief William Dubbs, the Borough employed one full time fire inspector until 1986 that worked with the building codes department to perform fire inspections and code enforcement. Upon his retirement, the position's duties were divided between the fire chief and building code department. There is not any evidence on the number of inspections performed each year. In addition to the chief, the 18-career firefighters were trained to perform inspections and began assisting with this process. The inspection program never flourished under this new system (personal communication, November 3, 2005).

In 2004, the Borough created an Assistant Chief position, primarily to manage the fire inspection and code enforcement program. Although some firefighters participated in the process, the majority resisted. In 2004, there were 1079 business and commercial occupancies in the Borough and only 447 or 40% were inspected. Due to financial constraints, it is anticipated that there will not be any more full time positions primarily for fire inspections and code enforcement. This program did not seem to be an effective program to reduce the hazards and prevent life safety issues within the community (CFD).

The U.S. Department of Homeland Security, Federal Emergency Management Agency, United States Fire Administration's primary mission is "to save lives and reduce economic losses due to fire and related emergencies through research and training, public education and coordination with other federal agencies and fire protection and emergency service personnel," (prolog). The National Fire Academy Executive Fire Officer Program Course, *Executive Leadership*, discussed this mission and how, as a fire service leader, to evoke positive change in our communities to save lives and reduce economic losses. This research project and implemented change was a direct result of this course to directly impact the citizens of the Borough of Chambersburg (FEMA, 2000).

LITERATURE REVIEW

1. What is a fire inspection program?

Fire inspections and code enforcement are a single component of a department's comprehensive fire prevention program according to Compton and Granito (2002).

Traditionally, fire prevention concentrated on code enforcement but over time developed into all of the activities that prevent loss. This includes preventing incidents before they occur or reducing the effects if they were to occur (p. 357).

Comprehensive prevention programs contain essentially the same elements. "For each type of emergency, the building blocks for prevention (including mitigation) are essentially the same: engineering, enforcement, education, and investigation designed to reduce risk or actual loss," (Compton & Granito, p. 358).

Lacey and Valentine (2005) and Crawford (2002) agree that fire prevention and code enforcement is a single component to an overall fire prevention program. Other components include establishing local codes and ordinances, educating the public about fire prevention and safety and investigating incidents after they occur.

A fire inspection program remains an essential component of fire prevention. The general public typically does not know or understand fire codes and hazards that can exist to cause a fire or risk occupants if a fire were to occur. Fire inspections should be viewed as an opportunity to educate the public on how to be safe (Crawford, 2002).

Most fires are caused by careless actions by the occupants or through ignorance and apathy. The purpose of fire inspections and code enforcement is not to write citations or reprimand. They are meant to identify and correct any hazards that may exist that could cause a

fire or contribute to fire spread and identify and correct any conditions that may impede egress of the occupants if a fire were to occur (Lacy et. al., 2005).

The owners have to be educated and consider the cost if a fire were to occur, the negative public image portrayed for having a fire and the liability for not protecting the safety of their occupants (NFPA, 1982).

The fire prevention process includes the adoption and maintenance of codes, the administration of the prevention and enforcement process, the selection and training of personnel and the management of the appeals process. The municipality first must adopt fire codes to establish what is expected and establish the authority to enforce the codes. Proper administration is necessary to review plans for new construction and existing occupancy compliance. An inventory and prioritization of properties has to be performed to ensure the highest threat to life and safety are addressed first. It is also essential to establish a record and database system to record and track inspection activities. Personnel have to be selected and trained to perform the inspections effectively and should be certified. Finally, there will always be discrepancies with legal issues in any mandated compliance by the municipality. A formal appeals process should be established to remove discrepancies and avoid legal liability (Crawford, 2002).

Lacey et al. (2005) agrees that the fire codes and ordinances are paramount. These should be based upon model codes that are performance based. In addition to the inspections themselves, plans review should be performed in conjunction with the building codes department as part of the process. Also, the knowledge and skills of the prevention staff will determine the effectiveness of the program.

Any fire inspection program must continually be monitored and improved over time to remain effective. The information database is essential to this process. This will allow you to

evaluate the progress of the program, identify any needs or weakness and determine and implement changes to improve the program (Ott, 2001).

The fire inspection program, again, must be viewed as a component of the overall fire prevention program. The key components include establishing the fire codes and ordinances and maintaining them as they change, the administration of the inspection and enforcement process, ensuring the training of personnel and the management of an appeals process (Compton & Granito, 2002).

2. What are the advantages to having a fire inspection program?

In addition to preventing or reducing the risk to the community, fire inspections include many more advantages. Fire inspections allow fire personnel to familiarize themselves with the occupancies in their area. In addition to code enforcement, the inspections provide pre-fire planning. With the knowledge gained during this process, the department can conduct more effective and efficient operations, reduce the property loss during an incident and better ensure the safety of personnel operating on the fireground. The incident commander's decisions during deployment and operations are based upon the information he or she possesses. Having more knowledge on the structure and identifying any special hazards allows the incident commander to make more effective decisions (DeLane, 2001).

Diamantes (2003) agrees that inspections provide the opportunity to familiarize personnel with occupancies, pre-plan hazards and increase public relations with the community. "This will increase firefighter safety, increase fire hazard reduction and improve community relations in that order," (p. 17).

Thorson (2000) also agrees that having engine companies perform fire inspections and pre-fire planning annually directly impacts the fire prevention effort. This is an opportunity to remedy any hazards that may exist as well as providing an opportunity for firefighters to familiarize themselves if they had to respond to an incident (p. 20).

Robertson (1979) agrees that inspections and pre-fire planning are essential fire prevention components but says they should not be performed at the same time. He feels they have conflicting purposes. Pre-fire planning is intended for familiarization of hazards and inspections have a more negative compliance connotation. This may lead to conflict and the owner may not be as informative or cooperative if performed at the same time. He does, however state they should closely coincide in timing so the frequency of visits is over a greater time period (pp. 143-144).

Most fire departments find it essential to use the firefighters to assist in performing fire inspections. With expanding communities and limited resources, even departments with fire inspection bureaus find it necessary to use engine companies to assist to perform inspections (Johnson, 2001).

Most governments, from the federal to local levels, continue to change to improve the quality of services being delivered to the citizens. In the future, they will continue to demand higher levels of quality at the lowest costs with the fastest deliveries. The fire service is no exception and must find ways to show quality productivity and service (Thompson, 2003).

Fires in this country due to careless and foolish actions or electrical or mechanical failure contribute to about 40-60% of all fires. Fires that exceed \$5,000 in damage are significantly lower in jurisdictions that perform annual fire inspections. The reduction in total fire loss can be

as much as a 50%, which demonstrates the need for every jurisdiction to perform annual fire inspections (Diamantes, 2003, p. 16).

The advantages to having a fire inspection program performed by firefighters include preventing or reducing the risk of fire to the community, allow fire personnel to familiarize themselves with structures through pre-fire planning, which results in safer and more effective operations on the fireground. In addition, this will allow all occupancies to be inspected annually with the increased inspection personnel and increase public relations within the community.

3. What has to be implemented to increase the effectiveness of a fire inspection program?

Program planning is the key to implement any type of organizational change. Many programs fall short of their goals during the implementation phase as the new assignments lose focus with normal daily activities. Management must implement specific milestones with timetables to ensure the program's priorities are being reached in the planning phase.

Individuals in the organization have to be given specific duties and responsibilities within the program to achieve the change. Once implemented, the individual efforts have to be evaluated to measure the compliance with the new program. Without all parties contributing their assigned responsibilities to the program, the program will not succeed (Sylvia and Meyer, 2002, p. 208).

For any fire inspection program to be effective, it must be managed well. The workload must be divided between inspectors to ensure the target number of occupancies to inspect is attainable. If not, fire inspectors can quickly become overwhelmed with the workload. The inspectors will run out of time and not reach their targeted goal, intentionally not perform their inspections or perform poor quality inspections in an effort just to meet quotas (Bradley, 2003).

All fire inspection programs should frequently be reviewed to determine any weaknesses. Any signs of issues should be addressed immediately. Full time inspectors should be able to complete between 500-600 inspections per year. This includes as many as 2 re-inspections to ensure the property meets the fire code and this should be in cooperation with other municipal departments (NFPA, 1982).

Johnson (2001) and Bradley (2003) agree that due to the typical workload, if an engine company is suppose to perform inspections as part of their daily duties, the department should limit the amount of inspections per inspector. Mandating too many inspections can decrease firefighter motivation and lead to poor quality fire prevention inspections. The inspections should be prioritized and completed addressing the most significant first to maximize the time and efforts.

According to Diamantes (2003), perhaps the most frequently debated topic regarding fire inspections is the frequency. He points out that there are multiple fire code standards including the National Fire Prevention Code, the Uniform Fire Code, the BOCA code and the International Fire Code. These codes all recommend fire inspections be performed regularly to mitigate any hazards and increase life safety but none of them state a specific frequency or a “duty to inspect clause.” In the management of the fire inspection program, it is left up to senior managers to decide how often each type of occupancy should be inspected and the priority each receives. The goal should be to perform quality inspections that target the most significant life safety and hazards first and then each occupancy of the same type should be inspected at the same frequency to remain fair and consistent. This process should be formally written into a department standard operating procedure to outline the process (pp. 17-20).

Thorson (2000) also agrees that the inspection schedule is set by the fire department or jurisdiction responsible for the occupancy. Varying schedules of frequency may occur and concentration should be placed upon the level of hazards that exist (p. 20).

Another essential component to fire inspection programs are the training and certification of personnel, according to Bradley (2003). All personnel performing inspections must have the proper training so the fire codes will be enforced unilaterally and consistently and the inspectors must understand the significant responsibilities with their position. The National Fire Protection Association's 1031 "Standard for Professional Qualifications for Fire Inspector" establishes the minimum level of proficiencies recommended to adequately perform fire inspections. Since most departments utilize firefighters to perform the majority of inspections, it is essential that this training be implemented to have an effective program (p. 11).

Training is much more than the development of new skills. "It includes a broad range of activities related directly to the delivery of services, planned change in the organization, socialization of employees to organizational values and the management of conflict," (Sylvia et al., 2002, p. 230).

In addition training is cited for improving productivity and the quality of work, prevents worker obsolescence, increases the overall job satisfaction, reduces the frequency of work-related accidents and reduces the costs of equipment repair and maintenance (Sylvia et al., 2002, p. 230).

According to Ott (2001) it is not unusual for municipalities to use firefighters to perform inspections but do not provide the proper training to accomplish this task. Many firefighters lack the interest to perform quality fire inspections. Often, the general public does not have the knowledge or awareness to appreciate fire prevention efforts. The time delay in seeing

measurable, tangible results in fire prevention efforts leads to this complacency. The results are the lack of attention given to fire inspection programs both operationally and in the budget process to develop and maintain quality fire prevention programs (p. 26).

In summary, there are several implementations that can be made to increase the effectiveness of a fire inspection program. Any new program requires proper planning to ensure organizational change. The inspection program has to be managed well to divide the workload, reach the targeted goal and ensure quality inspections are performed. Any weaknesses discovered in the process should immediately be resolved. The goal for every jurisdiction should be, at the minimum, to perform annual inspections. These inspections should be prioritized by hazard and inspected at the same frequency to ensure fairness. All firefighters should be trained and certified to the NFPA 1031 standard to ensure quality inspections. This will increase their knowledge and overall job satisfaction. In addition, the firefighters and the public should be educated to fully appreciate the impacts on the community of a fire inspection program.

PROCEDURES

The action research methodology was used for this project to determine how to develop an effective fire inspection and code enforcement program that will systematically inspect all business and commercial occupancies within the Borough of Chambersburg, PA.

A literature review was performed at the Learning Resource Center at the National Emergency Training Center in Emmitsburg, MD. Further research was conducted at the Ezra Lehman Memorial Library at Shippensburg University in Shippensburg, PA. Additional research was conducted in the author's personal library.

An interview was conducted with Assistant Chief William Dubbs of the Chambersburg Fire Department on November 3, 2005. Chief Dubbs is in charge of the fire inspection and code enforcement program for the department.

Fire inspection data analysis was conducted through the use of the Chambersburg Fire Department “Firehouse” database. This database provided occupancy information for the Borough of Chambersburg, past inspection data including occupancies inspected, violations and re-inspection activities. The database also provided information on each fire inspector within the department, identifying their past training and inspection activities.

Several correspondence and communications with Thomas Finucane, the Borough Solicitor, were conducted for direction and guidance. This was needed because the career firefighters and the Borough have a labor management contract and any changes in duties could result in legal action.

Following the research portion of the project, an action plan was developed (Appendix I) to identify the goal of the project, the strategies to reach this goal and the objectives to attain each strategy. This action plan provides a model to follow to identify the results and determine the implementation needs of the fire inspection program to become effective.

Definition of Terms:

Code Enforcement:	To carry out or compel compliance with an established fire code.
Fire Prevention:	Efforts to keep fires from happening or to be in a state of readiness if it were to occur.
Fire Inspection:	The checking or testing against a fire or life safety standard.
Goals:	Broad statements directed at accomplishing an organization’s purpose.
Objectives:	Narrowly focused defined steps to accomplish an organization's strategies.
Strategies:	A plan or method to accomplish an organization’s goals.

Assumptions and Limitations

There are assumptions and limitations for this research project. The research for this project was limited to the sources stated. This did not include the vast amount of documentation on the subject both written and programs in place. The history of the department inspection program was subject to recall and no concise documentation was found to support or refute the information given.

This project, most notably, was limited by time. Following research and implementation, the time to measure any results is limited. To gain a true measure of any fire prevention program, more time would be needed to evaluate the overall reduction in fire death and injuries as well as a reduction in property and economic loss.

The assumptions for this project include the accuracy of information by officials during personal communications and the accuracy of the fire department database. Also, it is assumed that upon implementation, the inspection program would continue to be supported by Borough's elected officials and administration, both organizationally and economically.

In addition, there is an assumption that the firefighters will participate in the implemented program and there would not be any labor resistance to changes being made in the program's job duties and responsibilities.

RESULTS

The results for this project were developed through action research to determine a clear definition of a fire inspection program, the advantages of having this program and to determine what needed to be implemented to make the Chambersburg Fire Department fire inspection program effective.

1. What is a fire inspection program?

The literature review revealed that a fire inspection program is a single component of a comprehensive fire prevention program (Compton & Granito, 2002). According to Lacey et al. (2005) and Crawford (2002), it is the essential component in fire prevention and should be viewed as an opportunity to educate the public and mitigate any hazards that could contribute to a fire or endanger occupants' egress.

Fire codes should be adopted by the municipality and be performance based. There has to be proper administration over the fire inspection and code enforcement process. Also, the training of personnel to adequately perform these inspections are paramount (Crawford, 2002 and Lacey et al., 2005). In addition, the inspection program must be continually monitored and improved and have an information database for proper evaluation (Lacey et al., 2005 and Ott, 2001).

2. What are the advantages to having a fire inspection program?

The literature review revealed the advantages of an effective fire inspection program. In addition to reducing the risk to the community, inspections allow firefighters to familiarize themselves with occupancies to conduct more effective operations and increase firefighter safety if a fire were to occur. This also allows increased public relations for the department (DeLane, 2001, Diamantes, 2003 and Thorson, 2000). Johnson (2001) and Thompson (2003) stated that most departments rely on firefighters performing inspections as the need for services and productivity increase while the need to keep costs low continues. Diamantes (2003) reviewed how jurisdictions could reduce their fire loss by 50% by conducting annual fire inspections.

3. What has to be implemented to increase the effectiveness of a fire inspection program?

The research indicated several implementations to establish an effective fire inspection program. Program planning, according to Sylvia et al. (2002), is the key to implementing any organizational change. They also state specific duties and responsibilities for all individuals involved, with milestones and timetables, are needed to ensure program effectiveness and goal attainment.

Fire inspection programs have to be managed well so inspectors do not become overwhelmed with the workload. If overwhelmed the inspectors are likely to run out of time, not perform their inspections or perform poor quality inspections to meet the set quotas. This would result in low morale and poor performance (Bradley, 2003 and Johnson, 2001). NFPA (1982) stated that full time inspectors should be able to complete 500-600 inspections per year including re-inspections of violations and should be in conjunction with other municipal departments.

The most frequently debated topic, according to Diamantes (2003), is the frequency for inspections. There are multiple fire code authorities but none address a specific frequency. He states that every occupancy type should be prioritized and inspected at the same frequency to remain fair. As he previously stated, jurisdictions conducting annual fire inspections can reduce their fire loss by 50% and recommends all jurisdictions conduct annual inspections (pp. 17-20).

Bradley (2003), Sylvia (2002) and Ott (2001) all stated the importance of training to achieve a successful fire prevention program. Training is essential to ensure quality inspections are performed consistently throughout the municipality. This can lead to increased job satisfaction, lower work related accidents and reduce the cost of repair and maintenance to equipment and prevent worker obsolescence. Bradley (2003) also stated firefighters should be

trained to the NFPA 1031 standard for fire inspectors to ensure they have the knowledge and skills to perform quality inspections.

Ott (2001) also illustrates that the public, as well as many firefighters, do not have the knowledge or appreciation for fire inspection programs. Due to the delay in seeing the results of efforts, many times a lack of attention exists in support of such programs both operationally and during the budgetary process.

Fire Department Application

After performing the literature review, an interview was conducted with Assistant Chief William Dubbs to determine the state of the inspection program. As discussed, the prior program never flourished (personal communication, November 3, 2005). Data analysis revealed that only 447 of 1079 (40%) business and commercial occupancies were inspected in the Borough in 2004. This fell short of the goal to inspect all of these occupancies annually. In addition, further data analysis indicated that very few firefighters within the Department were certified to the NFPA 1031 standard for fire inspector.

An action plan was implemented (Appendix I) to address all of the key components to ensure success and develop an effective fire inspection program. Based upon this action plan, it was identified that program management and training issues existed that made the present program ineffective.

In the program management process, the occupancies needed to be divided evenly. The inspection schedule needed to be updated and prioritized based on possible fire and/or life hazard. This list was updated and given to each firefighter performing inspections (not all were certified). The goal is to divide the 1,079 occupancies that require inspections evenly and by

priority between all 18-career firefighters. This will give each firefighter 60 inspections per year to complete or 5 per month. Based on the NFPA recommendation of a full time inspector being able to complete 500 per year this workload, in relation to the 24/48 scheduled days worked by the firefighters, is reasonable.

The firefighter duties and responsibilities for the fire inspection program had to be formalized into a standard operation procedure (Appendix II). This enabled each firefighter to know exactly what was expected of his or her performance. After two months of preparation, this standard operating procedure went into effect October 1, 2005. Due to the labor-management contract, Borough Solicitor Thomas Finucane contributed to this process to avoid any legal complications through several correspondence and communications.

Upon implementation, the fire inspection program required daily supervision to ensure all firefighters were completing their inspections based upon their yearly timetable. The “Firehouse” database was instrumental in completing this task. Assistant Chief Dubbs, who is in charge of the fire inspection program, performed this duty.

The results also identified training issues on fire inspections existing within the department. There was not any consistency in training among the members. Some were certified by the Commonwealth of Pennsylvania as fire inspectors, some had training at lower levels than the NFPA 1030 standard and others had little to no formalized training in fire inspections. It was determined, to meet the recommendations based upon research, and the department should schedule a formal fire inspection class and certify all members under the NFPA standard. Due to scheduling and budgetary considerations, this class will take place the first week of February 2006. Once the firefighters meet the certification standard, the

department will then schedule yearly fire inspection training classes for continuing educational purposes.

Another training consideration is the direct supervision of the fire inspections to review for quality, accuracy and provide immediate feedback to each inspector as issues are encountered. Assistant Chief Dubbs, as stated, is performing these tasks to ensure this takes place on a daily basis. Marked improvement in the quality of inspections and the competencies of the firefighters has already been noted.

This project researched the components of effective fire inspection programs and the benefits of having these programs. This knowledge enabled the author to formulate an action research plan to develop and implement an effective fire inspection program. This was accomplished by identifying the strengths of the previous program and implementing change to overcome the weaknesses for the new fire inspection program.

DISCUSSION

This study confirmed that a fire inspection program is only a single but essential component of a comprehensive fire prevention program. This process should be viewed as an opportunity to educate the public and mitigate any hazards that could contribute to a fire or endanger occupants egress (Compton & Granito, 2002, Lacey et al. 2005 and Crawford 2002).

This study confirmed the need for the Borough to have adopted the International Fire Code and delegate the administration and enforcement to the fire officials, which should provide the foundation for a sound fire inspection and code enforcement program (Crawford, 2002 and Lacey et al., 2005). In addition, the department, after implementation, now has to continually

monitor and improve the program and continue to maintain an information database for proper evaluation (Lacey et al., 2005 and Ott, 2001).

The project also revealed the need to promote the positive aspects of fire inspections to the firefighters. In addition to reducing the risk to the community, the inspections will allow firefighters to familiarize themselves with occupancies to conduct more effective operations and increase firefighter safety if a fire were to occur. This also allows increased public relations for the department (DeLane, 2001, Diamantes, 2003 and Thorson, 2000). Johnson (2001) and Thompson (2003) agree with the Borough's approach to rely on firefighters to perform inspections because the department does need to show productivity in the services being delivered to the community without significant budgetary increases.

As part of the ongoing evaluation process, the department should capitalize and promote any decreases in fire injuries or deaths and any reduction in fire loss that can be attributed to the fire inspection program (Diamantes, 2003).

According to Sylvia et al. (2002), the key to implementing any organizational change is program planning. Part of this project was to plan the fire prevention program with an action plan to identify the goal, strategies and objectives. This included stating specific duties and responsibilities for all individuals involved, with the milestones and timetables that are needed to ensure program effectiveness and goal attainment.

The action plan also included the management of fire inspection programs to distribute the workloads, achieve the goal and ensure quality inspections are performed. This should avoid low morale and poor performance issues (Bradley, 2003 and Johnson, 2001).

Based upon the NFPA (1982) recommendations, which stated that full time inspectors should be able to complete 500-600 inspections per year, an attainable number of inspections

were devised for the Chambersburg firefighters. In addition, based upon Diamantes (2003) explanation and recommendation, the occupancies in the Borough were prioritized and the frequency goal was set to try and perform annual inspections on all occupancies. This will inspect occupancies at a consistent and fair frequency and potentially reduce the Borough's fire loss by 50%.

Bradley (2003), Sylvia (2002) and Ott (2001) all stated the importance of training to achieve a successful fire prevention program. This element revealed the potentially largest issue within the Chambersburg program. Training and certification for all of the firefighters has to occur to ensure quality inspections are performed consistency throughout the municipality, increase awareness, job satisfaction, lower work related accidents and reduce the cost of repair and maintenance to equipment. The department has to train all firefighters to the NFPA 1031 standard for fire inspectors to ensure they have the knowledge and skills to perform quality inspections (Bradley, 2003).

Ott (2001) also confirmed that the public, as well as many Borough firefighters, do not have the knowledge or appreciation for fire inspection programs. Due to the delay in seeing the results of efforts, many times a lack of attention exists to support these programs both operationally and during the budgetary process. Promotion of a successful fire inspection program should change this in the future.

The implications for the department are the reduction of fire injuries and deaths as well as the reduction of fire loss within the Borough of Chambersburg. As this program develops and improves in the future, this should become a model fire inspection and code enforcement program that other departments in the fire service could emulate.

RECOMMENDATIONS

Based upon this research project results, positive change is occurring in the Borough of Chambersburg, PA. To overcome the problem of an ineffective fire inspection program and continue to develop and maintain the goal of an effective fire inspection and code enforcement program that will systematically inspect all businesses and commercial occupancies within the Borough, the strategies and objectives formulated in the action plan must be carried out.

The Borough adopted the International Building Code in 2003, extended the enforcement to the fire officials within the department and established a formal appeals process. To remain effective, these codes must be maintained and updated as needed and the enforcement of the codes must continue in the future.

The department must effectively manage the fire inspection program process. Fire officials must continue, in conjunction with the building codes department, review all plans for new and existing construction. The department must continue to maintain a database and periodically ensure it is updated as occupancies change. The distribution of workload and the firefighter duties and responsibilities may have to be enhanced or altered in the future as the community grows. In addition, the evaluation of firefighter progress to meet the timetable for completion must continue and remedial action taken to ensure compliance in the future.

The department must also follow through with the training process to ensure all employees are able to perform quality fire inspections. In addition to the initial certification of all 18-career firefighters, continuing education must take place to ensure each remains up to date on current practices. The direct supervision and review has to continue to ensure quality and provide clarification and learning during the process for each inspector. As new employees are

hired in the future, they will also need to be initially certified and then retrained on the inspection process.

In the future, the department needs to evaluate the effectiveness of the fire inspection program over time. The true indicator for effectiveness of the inspection program will be the reduction in fire injuries and deaths and the reduction of property and economic loss within the Borough. This will have to be evaluated over time to overcome the delay in seeing and quantifying the results of the department's efforts. Through the comparison of the present benchmarks to the future incidents, this may be quantified and appreciated by all.

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APPENDIX I: FIRE INSPECTION PROGRAM ACTION PLAN

GOAL:

Develop an effective fire inspection and code enforcement program that will systematically inspect all business and commercial occupancies within the Borough.

STRATEGIES AND OBJECTIVES:

1. Borough Adoption of fire codes to establish standards and the enforcement process.
 - a. Borough adoption of the International Building Code in April 2003.
 - b. The Borough extended the enforcement to the Fire Chief, and later Assistant Chief.
 - c. Formal appeals process established through the planning and zoning Commission.
2. The Department must effectively manage the fire inspection program process.
 - a. Department official must review all plans for new construction and existing occupancies.
 - b. Establish and maintain an inspection record database using “Firehouse” Software.
 - c. Prioritize and divide the workload evenly: 60 per inspector of 1079 total.
 - d. Establish fire fighter duty and responsibility to the fire inspection program.
 - e. Evaluate each fire fighters timetable for completion.
3. The Department must train all employees to perform quality fire inspections.
 - a. Certify all 18-career fire fighters as certified fire inspectors NFPA 1031 standard.
 - b. Perform direct supervision to review each inspection for quality.
 - c. Provide continuing education on fire inspections.

APPENDIX II: FIRE INSPECTION STANDARD OPERATING PROCEDURE

PURPOSE

The purpose of this procedure is to establish Fire Department policy for performing the inspection of domestic, commercial, and industrial properties for fire hazards with a view to their elimination in accordance with provisions of the Fire Prevention Code and other applicable regulations.

POLICY

- A. Fire inspections will be conducted Monday thru Friday, during the employees' normally scheduled shifts.
- B. At least one fire inspection shall be made by each employee during each assigned work shift (unless responding to a call during the time for inspection). The time of inspection shall be 1300 to 1500 hours unless other arrangements are made with the business owner to perform the inspection at another time on the shift. The place to be inspected shall be from the list provided by the Assistant Chief to the employee. The employee shall make arrangements with the business owner (or person in charge of the premises) for the inspection at least 48 hours prior to the inspection.
- C. A daily activities report for each shift shall be completed by the Engine 1-2 operator at headquarters fire station for each shift. A copy of the inspection reports completed that shift (i.e. the report placed in the computer) will be turned in to the Assistant Chief for all Monday thru Friday shifts. If no required inspection was made then a written explanation for the failure shall be provided on the report.
- D. Each inspection report shall state the next scheduled inspection and provide contact information for the business owner (so that The Assistant Chief can contact the business owner in the event the employee is not able to make the inspection). Failure to perform required inspections will be conduct subject to discipline.

Note: Ambulance personnel shall take the ambulance with them to make the required inspections. The crew shall be only required to make one inspection for each work shift.